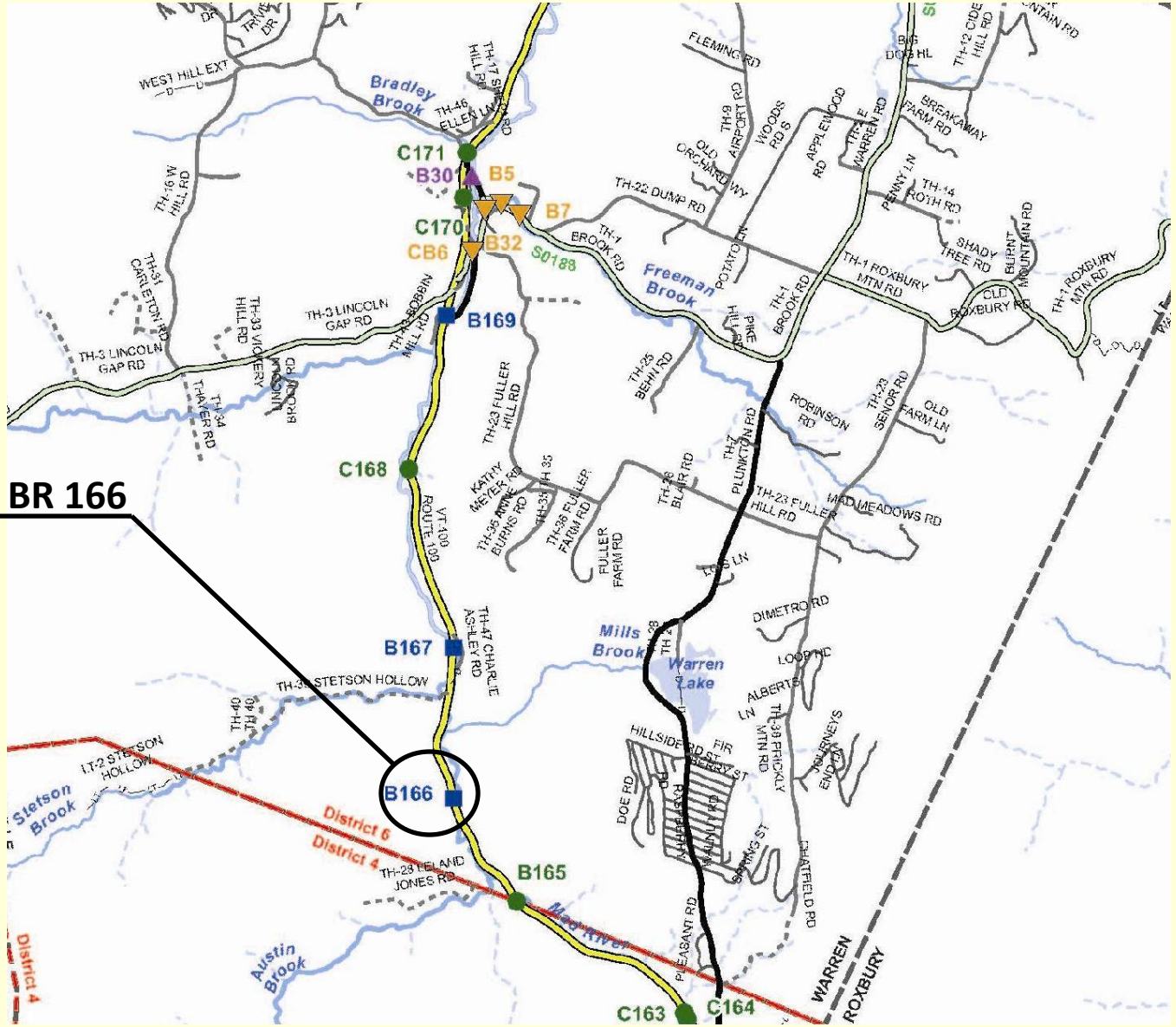
Warren BRF 013-4(32)
Bridge 166 on VT 100 Over the Mad River
Alternatives Presentation

VERMONT

PROJECT LOCATION



Meeting Outline

- Purpose of the Meeting
- Structures Section re-organization
- Existing bridge deficiencies
- Alternatives considered
- Summary and recommendation-

Purpose of Meeting

- Present the alternatives that we have considered
- Explain the constraints to the project
- Help you understand our approach to the project
- Provide you with the chance to ask questions.
- Provide you with the chance to voice concerns
- Build consensus for the recommended alternative -

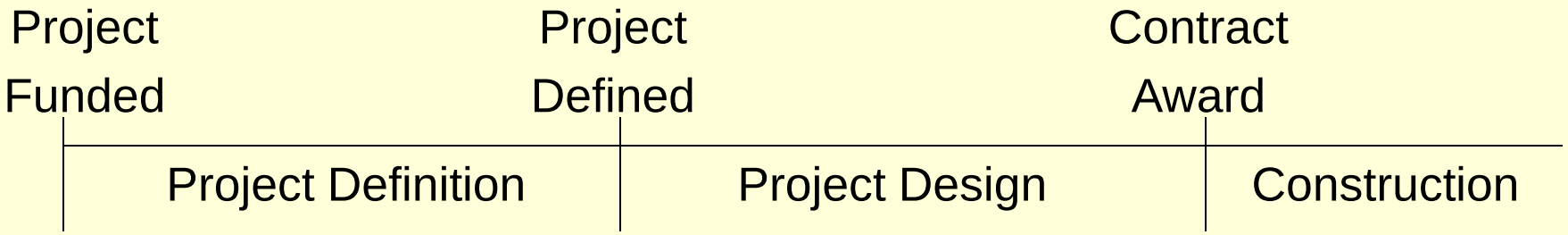
Accelerated Bridge Program

- Began in January 2012
- Bridges are deteriorating faster than we can fix them
- Accelerated Bridge Construction (ABC) is key
- Impacts to property and resources is minimized
- Standard details repeated on many projects
- Shift from individual projects to programmatic approach
- Accelerated Project Delivery (ABP)
- Goal of 2 year design phase for ABP (5 years conventional)
- Goal of 25% of projects into Accelerated Bridge Program-

Project Initiation & Innovation Team

- Part of re-organization in January 2012
- Currently team of 5
- All projects will begin in the PIIT
- Very efficient process
- Look for innovative solutions whenever possible
- Involved until Project Scope is defined
- Hand off to PM to continue Project Design phase -

Phases of Development



Identify resources & constraints

Evaluate alternatives

Public Participation

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications

Project Background

- **Priority 6** in the State Bridge Program
- The structure is owned and maintained by the State (no local funds)
- VT 100 has a functional classification of **Rural Minor Arterial**.
- Existing bridge is a single-span steel beam bridge with a concrete deck built in **1939**
- Bridge is structurally deficient and has a Federal sufficiency rating of **33 (out of 100) -**

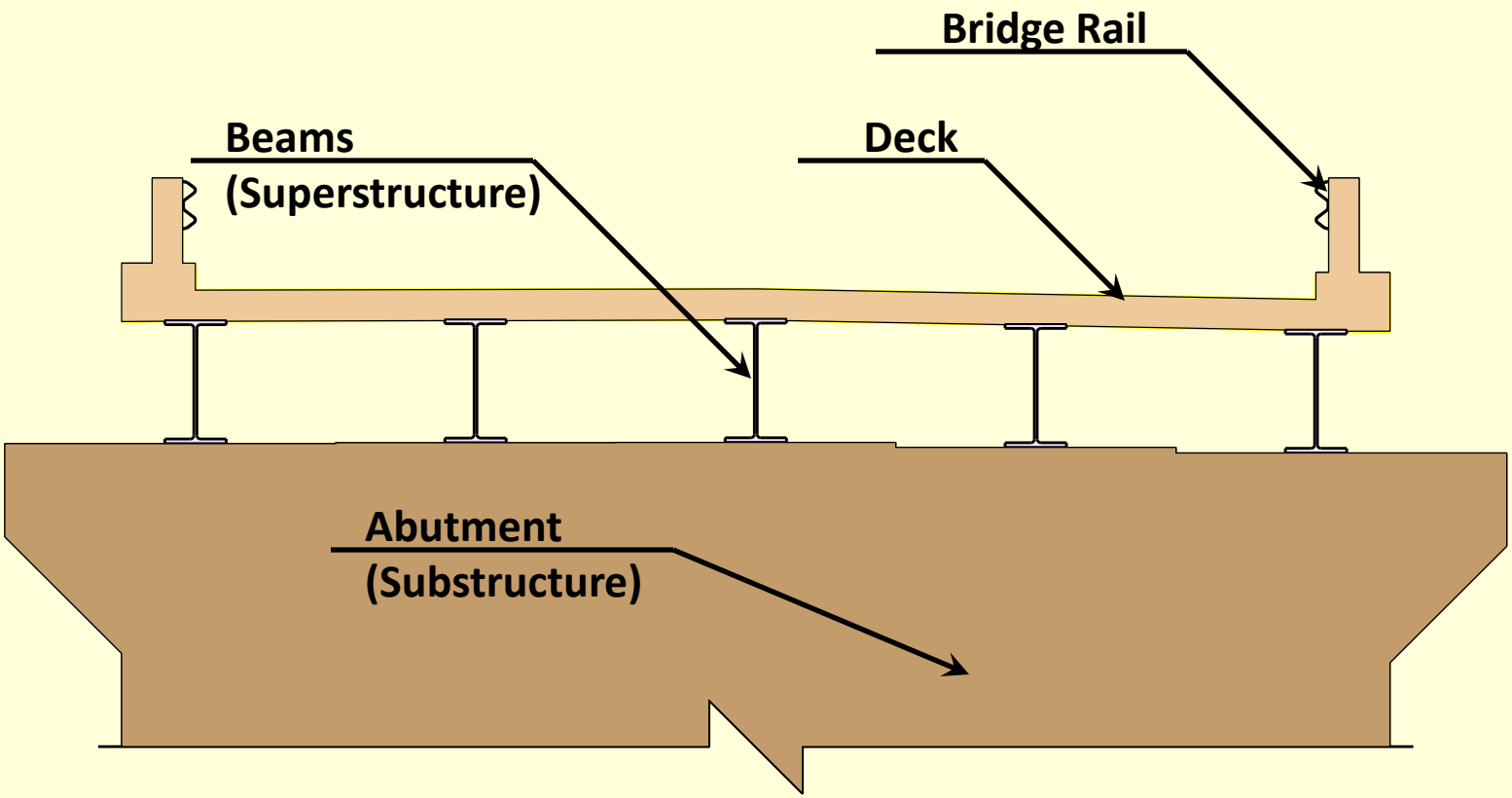
Project Background (Cont)

- Traffic Data

TRAFFIC DATA	2014	2034
AADT	1,100	1,200
DHV	140	160
ADTT	65	110
%T	5.6	8.7

- Comparative Traffic Volumes
  - VT 100 in Waitsfield = 6,300
  - VT 103 in Chester = 8,200
  - VT 14 in East Montpelier = 4,700

Description of Terms Used



EXISTING BRIDGE DEFICIENCIES

Deficiencies

Structural Capacity of the Bridge Deck

Structural Stability of the Bridge Substructure

Substandard Bridge Rail

Travel Width on the Bridge

Inspection Report Information (Based on a scale of 9)

Bridge Deck Rating	**4 Poor**
Superstructure Rating	**6 Satisfactory**
Substructure Rating	**4 Poor**

Width of Bridge

Bridge Deck

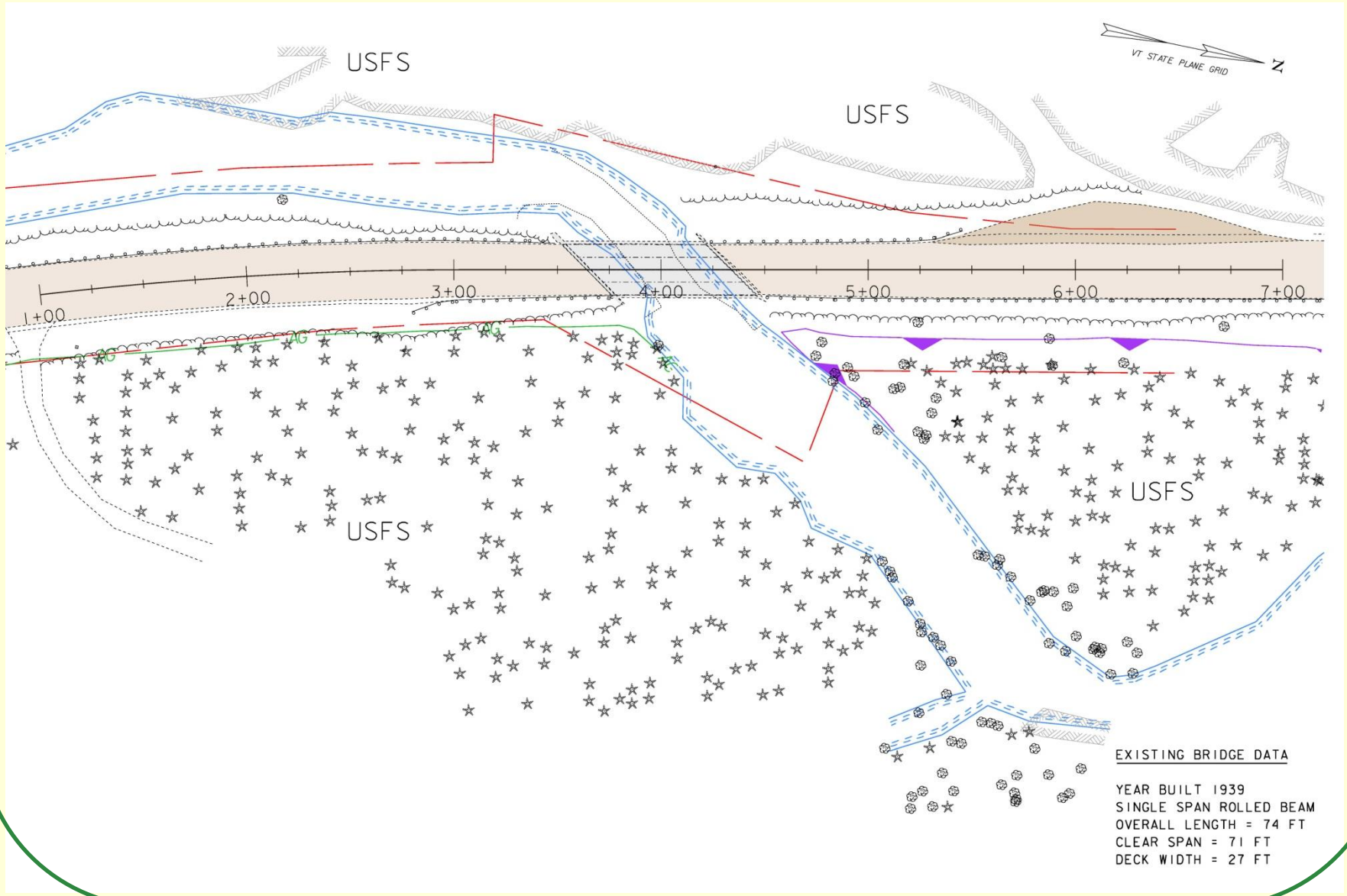
Abutments

Bridge Railing

Existing Site Conditions

- Bridge Width (Face-Face Rail) = 24’-0”
- Posted Speed Limit = 50 mph
- No Postings for Weight Restriction
- No Overhead Utilities present -

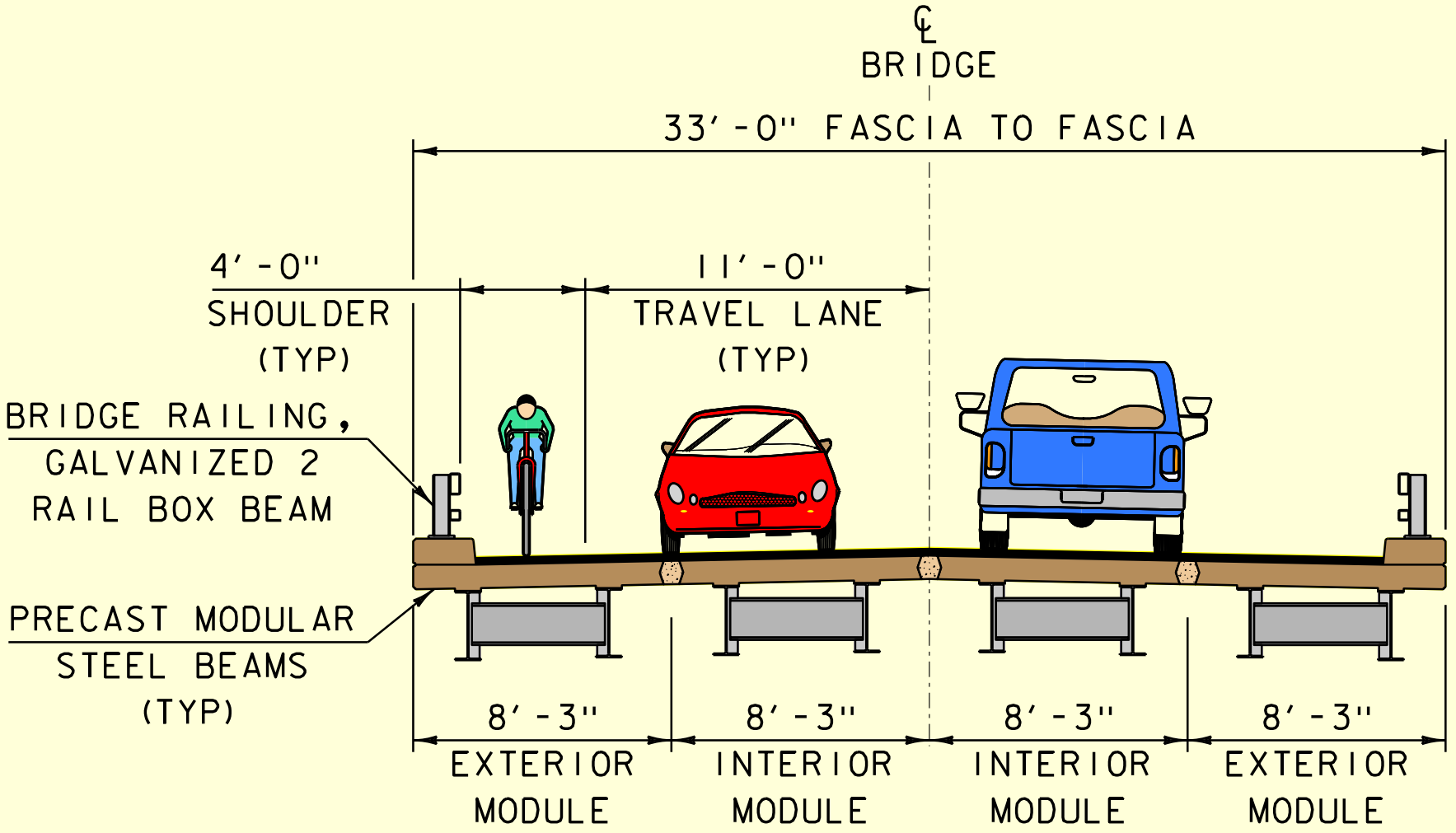
Layout Showing Constraints



Proposed Project

- Complete bridge replacement needed
- Use 11’ lanes and 4’ shoulders (30’ rail-rail width)
- Increase bridge span to 85’
- Maintain existing centerline and grade -

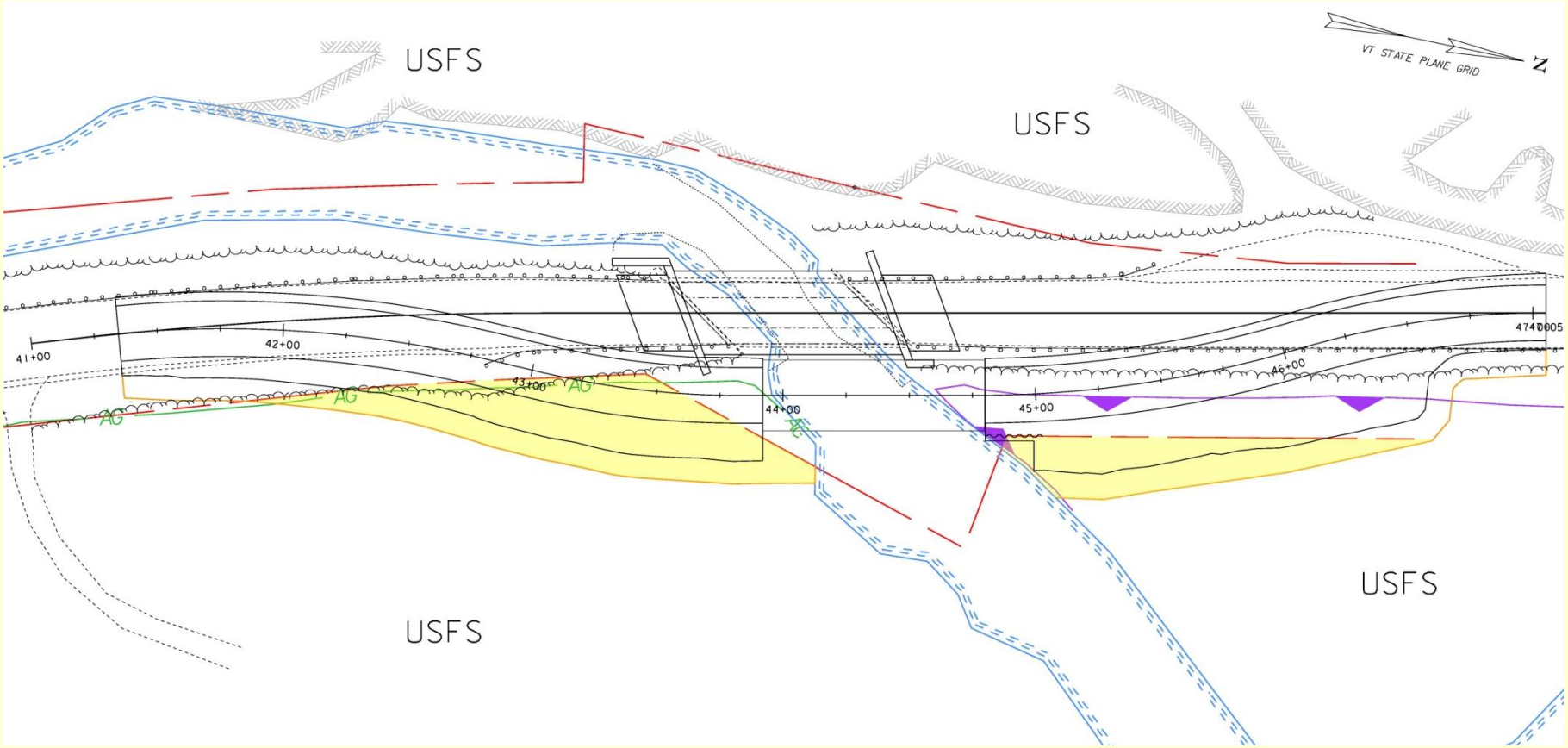
Proposed Bridge Typical



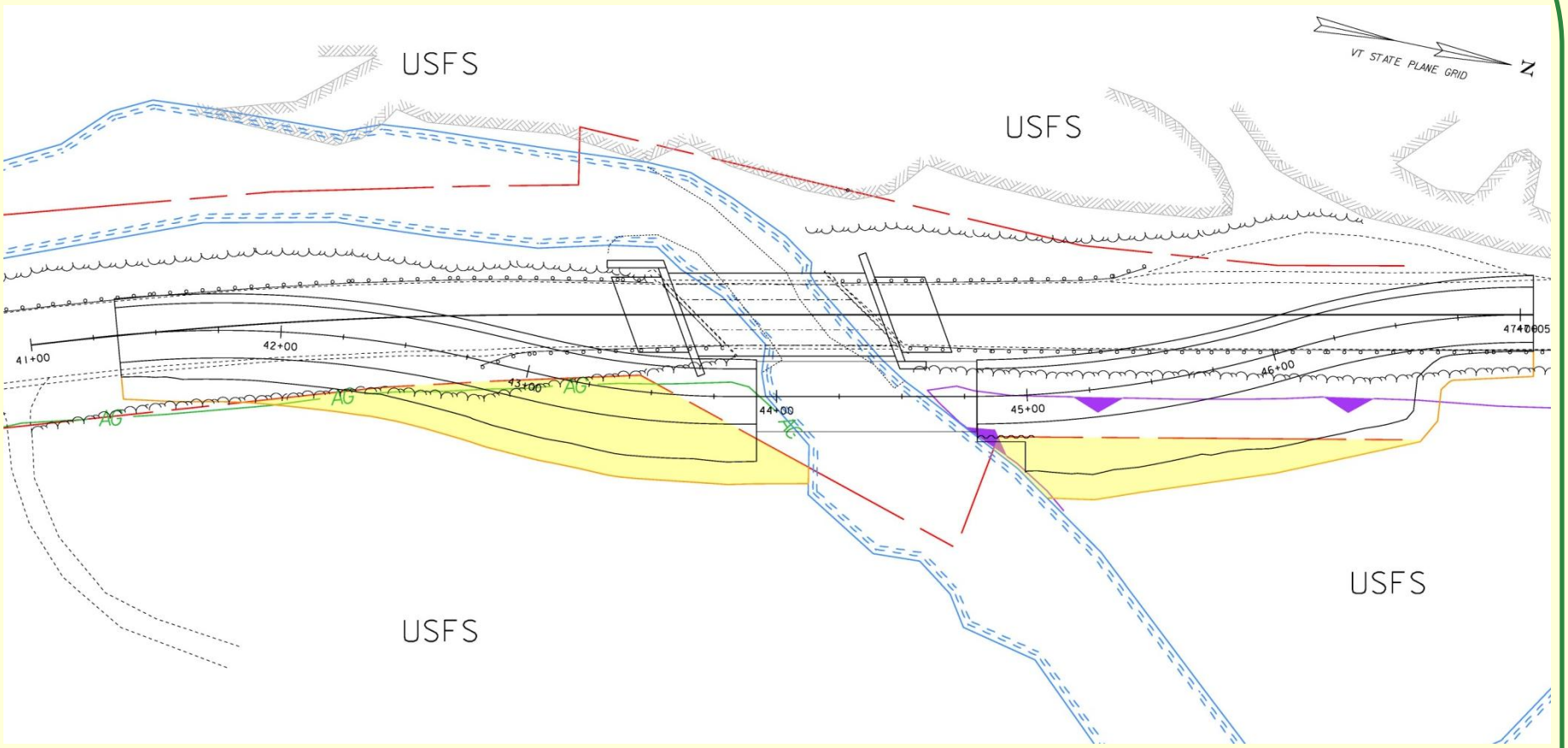
Options to Maintain Traffic

- Two-way temporary bridge off alignment
- One-way temporary bridge off alignment
- One-way temporary bridge on alignment
- Short-term road closure w/ ABC -

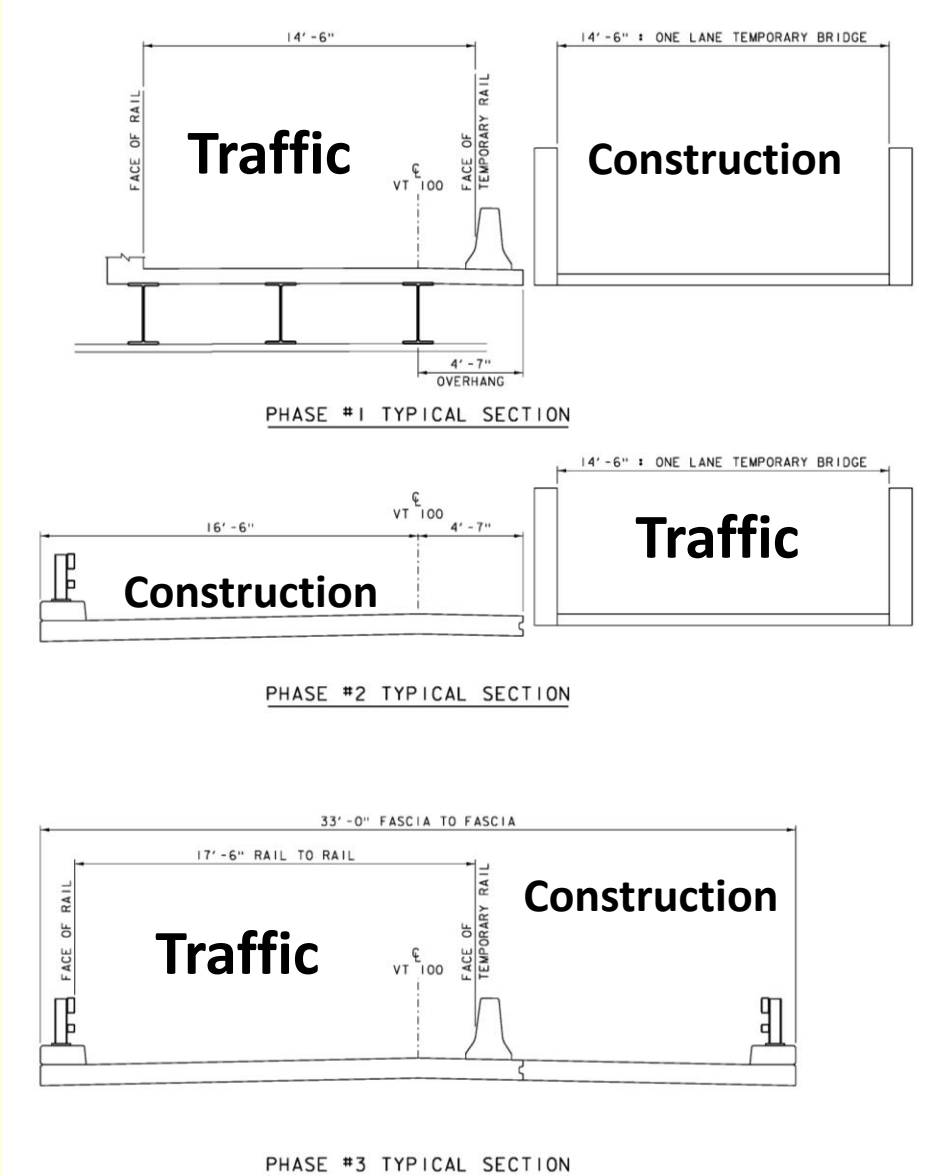
Two-Way Temporary Bridge



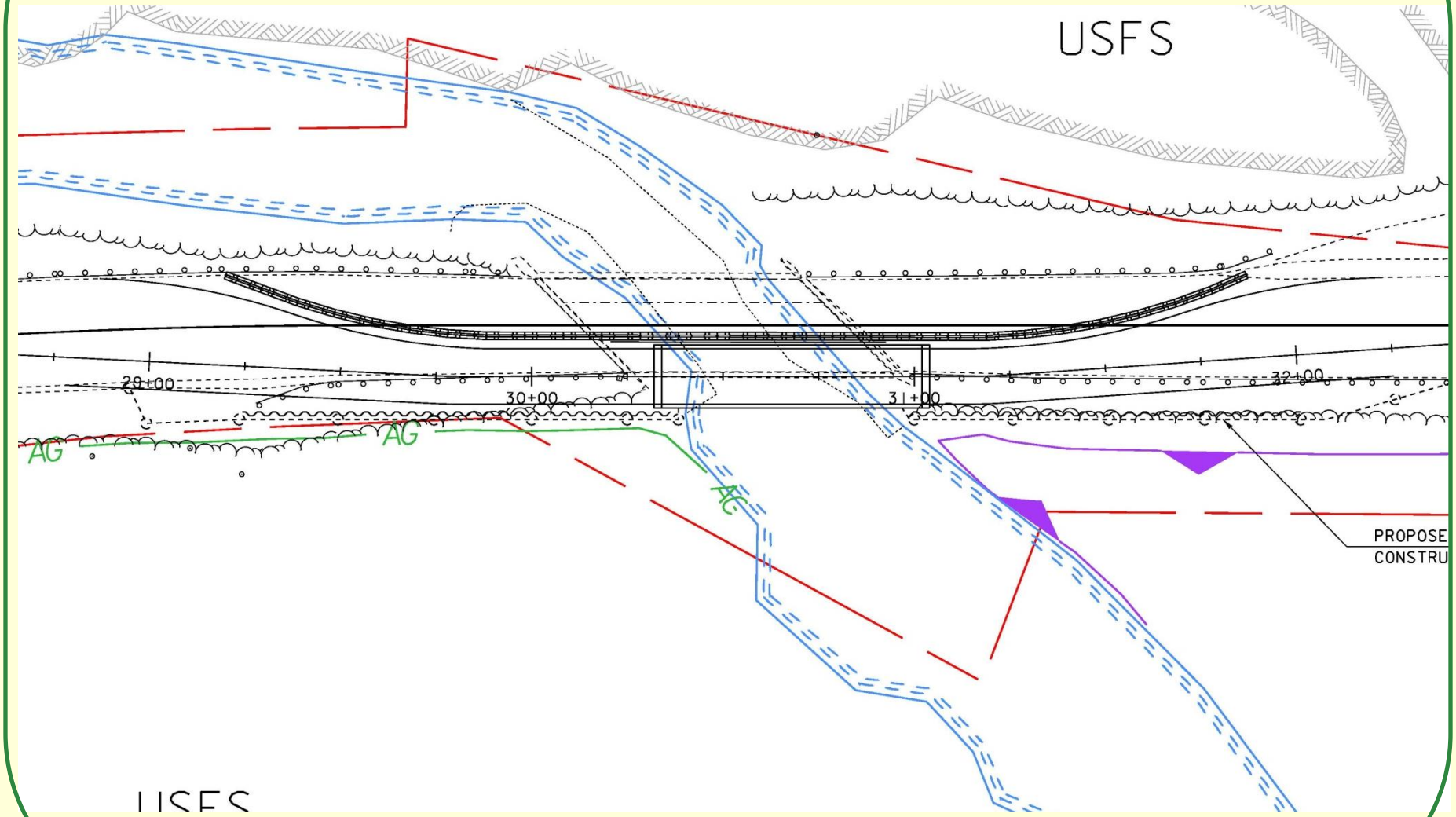
One-Way Temporary Bridge - Off



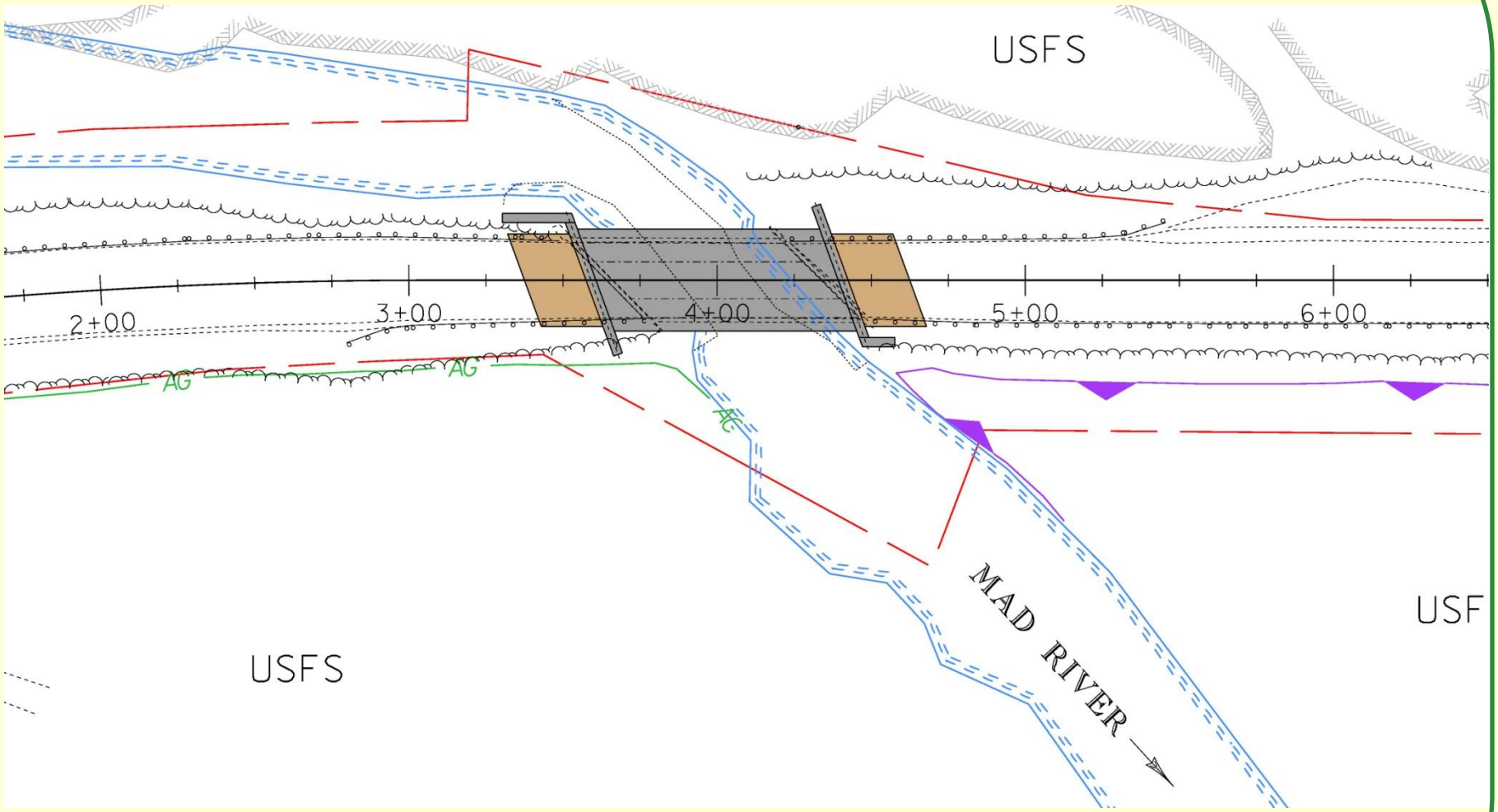
One-Way Temporary Bridge - On



One-Way Temporary Bridge - On



Bridge Closure w/ ABC

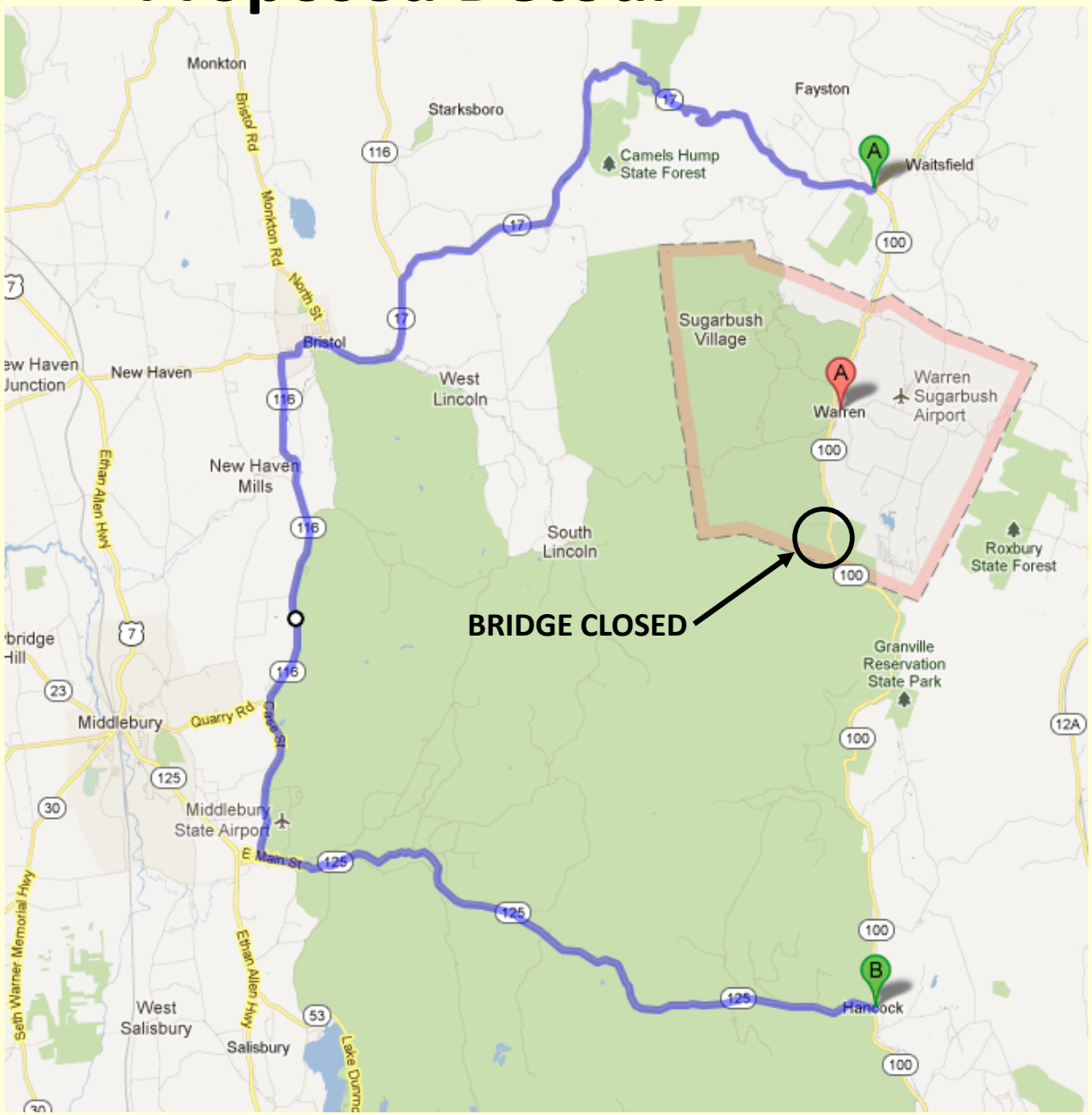


Bridge Closure Details

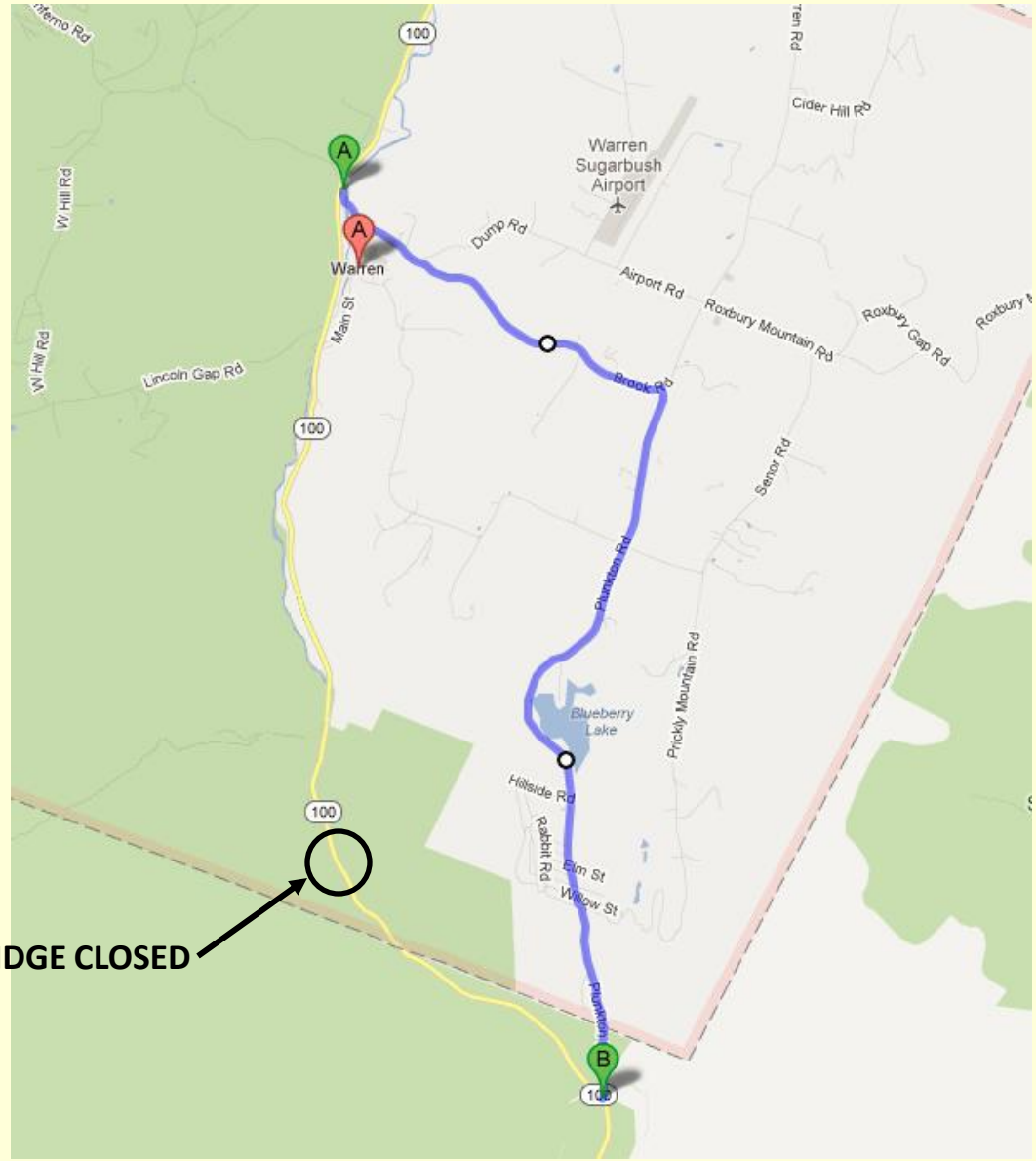
- Bridge 166 to be closed for 14 days (maximum)
- Allow 24/7 construction during bridge closure
- Contract incentives/dis-incentives to encourage contractor
- Community would have input in time of closure
- Detour would be on State highways
- Public Outreach to provide advance notice for planning
- Local bypass routes would not be considered detour route -

Proposed Detour

- **Detour = 47 miles**
- **Thru = 20 miles**
- **Added = 27 miles**



Local Bypass Route



Local Bypass Details

- Local bypass route would not be considered detour route
- State would not add signing on local roads
- Can mitigate Town for impacts due to increased traffic by:
  - Providing police presence to deter speeding
  - Providing DMV presence to enforce weight limits
  - Contract work to rebuild road to previous condition
  - OR Compensating Town a predetermined amount -

Accelerated Bridge Construction

Driven steel piles with precast concrete cap for abutment

Accelerated Bridge Construction

Precast Concrete Cap placed in two sections

Accelerated Bridge Construction

Precast concrete Abutment in place

Accelerated Bridge Construction

Precast Bridge Unit delivered to site

Accelerated Bridge Construction

Precast Bridge Unit lifted onto abutments

Accelerated Bridge Construction

Precast Bridge Unit connected together

Alternatives Matrix

	Road Closed	One-lane Temporary Bridge On Alignment	One-lane Temporary Bridge Off Alignment	Two-lane Temporary Bridge Off Alignment
Temporary Bridge	$0	$80,000	$150,000	$250,000
Construction w/ Eng'ring + Conting	$1,296,000	$1,510,000	$1,632,000	$1,781,000
Preliminary Engineering	$216,000	$242,000	$251,000	$274,000
Right of Way	$0	$0	$88,000	$96,000
Total Cost	**$1,512,000**	**$1,752,000**	**$1,971,000**	**$2,151,000**
		15.90%	30.40%	42.30%
Project Development Duration	1 year	1 year	3 years	3 years
Construction Duration	3 months	18 months	18 months	18 months
Mobility Impact Duration	1 month	12 months	12 months	12 months

Questions